Rotation Change of a Double Suction Element

Determining rotation and how to alter rotation is a common question from customers and the field. The purpose of this newsletter is to provide a procedure for our various models and show how to answer these questions when they arise.

Double Suction pumps are provided in clockwise (right hand) and counter clockwise (left hand) rotation. There are instances where the rotation needs to be reversed in the field. Examples of this would be repurposing an existing pump or motor, the suction and discharge on the pump are flipped and the pump shaft is opposite the motor shaft.

Rotating elements on double suction pumps are provided with right hand rotation (clockwise) as standard. When changing the rotation it is important to recognize the design of the impeller. In Fig. 1 the vanes are oriented to throw the fluid from the eye of the impeller to the casing as demonstrated on the left. Fig. 1 shows an example of the impeller rotating in an improper direction relative to the vane orientation.

Clockwise rotation is the right hand rotation of the shaft when viewed from the drive end. Counter clockwise rotation is the left hand rotation of the shaft when viewed from the drive end.

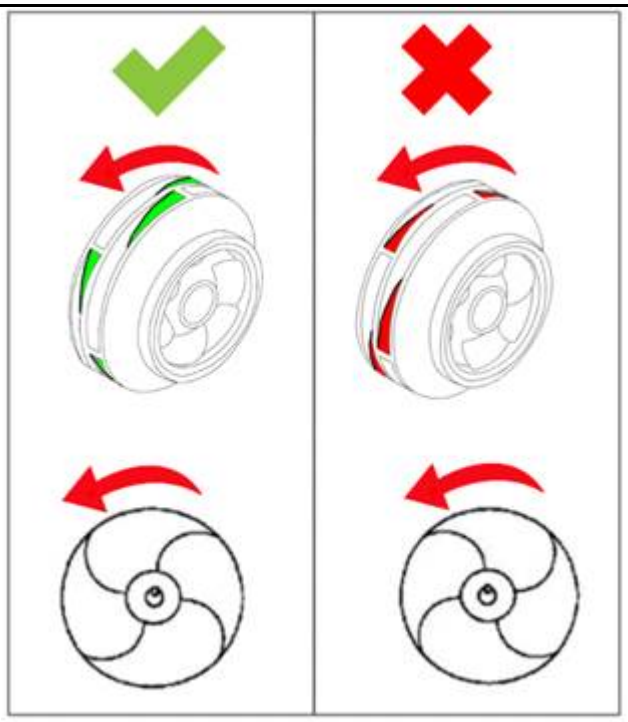

Fig. 1

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Fig. 2 shows right hand rotation (clockwise) when viewed from the drive end.

To reverse the rotation of the pump, remove the rotating element per the steps in the IOM. Once the element has been removed and properly supported, remove the radial bearing housing, oil seal, radial bearing, sleeve nut, sleeve and impeller. Check the gaskets and bearings for damage and reassemble the element with the impeller flipped in the alternate orientation.

Note: Casing feet of double suction pumps are symmetrical and can be rotated on the baseplate without additional drilling.

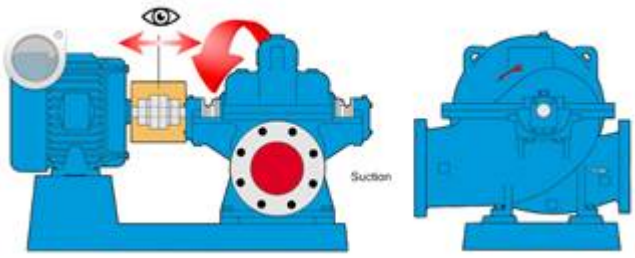

Fig 2

NOTICE: It is important to note that motors require the opposite direction of rotation to that of the driven equipment. As the perspective of each is taken from the coupling, when viewed from the drive end they will have an opposite direction of rotation. For motors with a double extended shaft the drive end is the end opposite of the motor fan.

Sleeve nut configuration and rotation.

The sleeve nut on the 3410 (M, L, XL sizes), 3409, and 3498 pumps are threaded with conventional right hand threads on both sides as standard. This means that one sleeve tightens with shaft rotation while the other sleeve loosens with shaft rotation. To prevent the sleeve nuts from loosening, a cone point set screw is used.

Sleeve nuts on the 3420 pump always tighten with rotation on both sides so no cone point set screw is required. If a rotation change is required on a 3420 pump then a new shaft and sleeve nuts will be needed.

Fig. 3 includes graphic examples of left hand rotation (counter clockwise) vs. right hand rotation (clockwise).

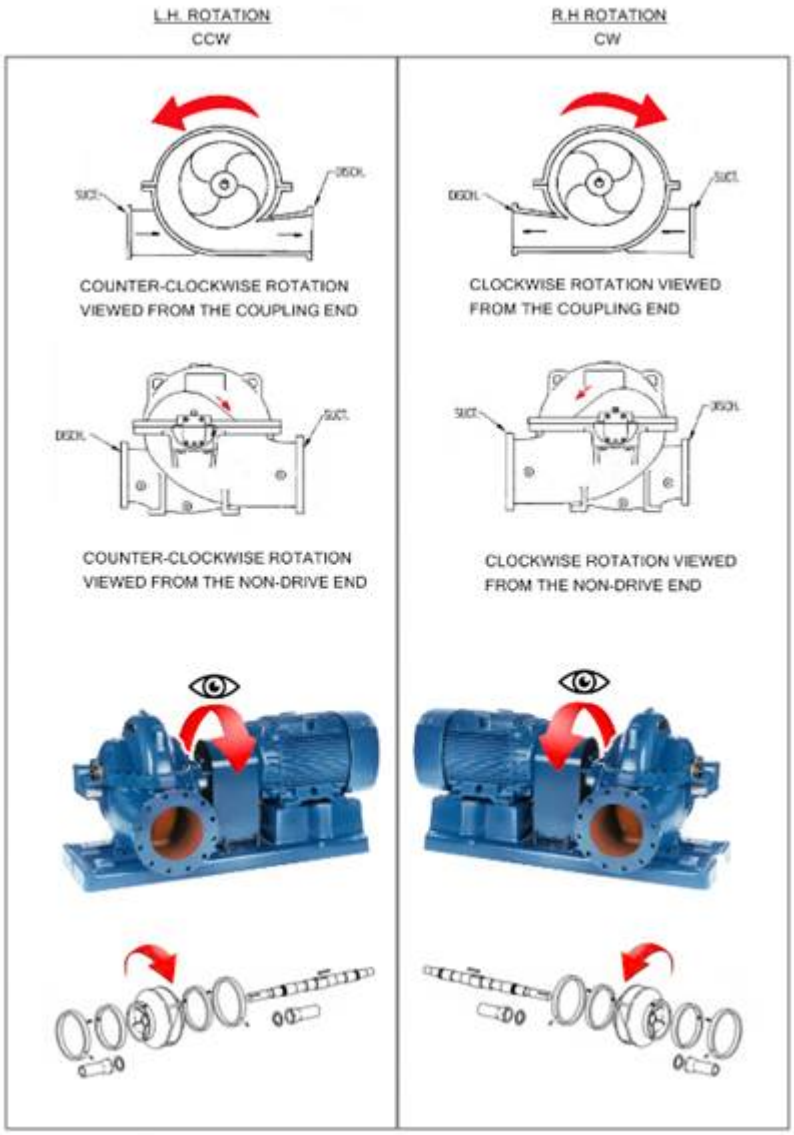

Fig 3

To reverse rotation, remove the element from the pump and secure the pump per the IOM. Remove the outer bearing housing, bearing, sleeve, sleeve nut, packing or mechanical seal and rotate the impeller. Rebuild the element per the IOM. Rotate the element and install it into the pump.

Recommended spares should be ordered for this conversion:

- Bearings
- Casing gaskets
- Sleeve gaskets
- O-rings
- Bearing housing seals
- Shaft, alternate rotation (3420)
- Sleeve nuts, alternate rotation (3420)

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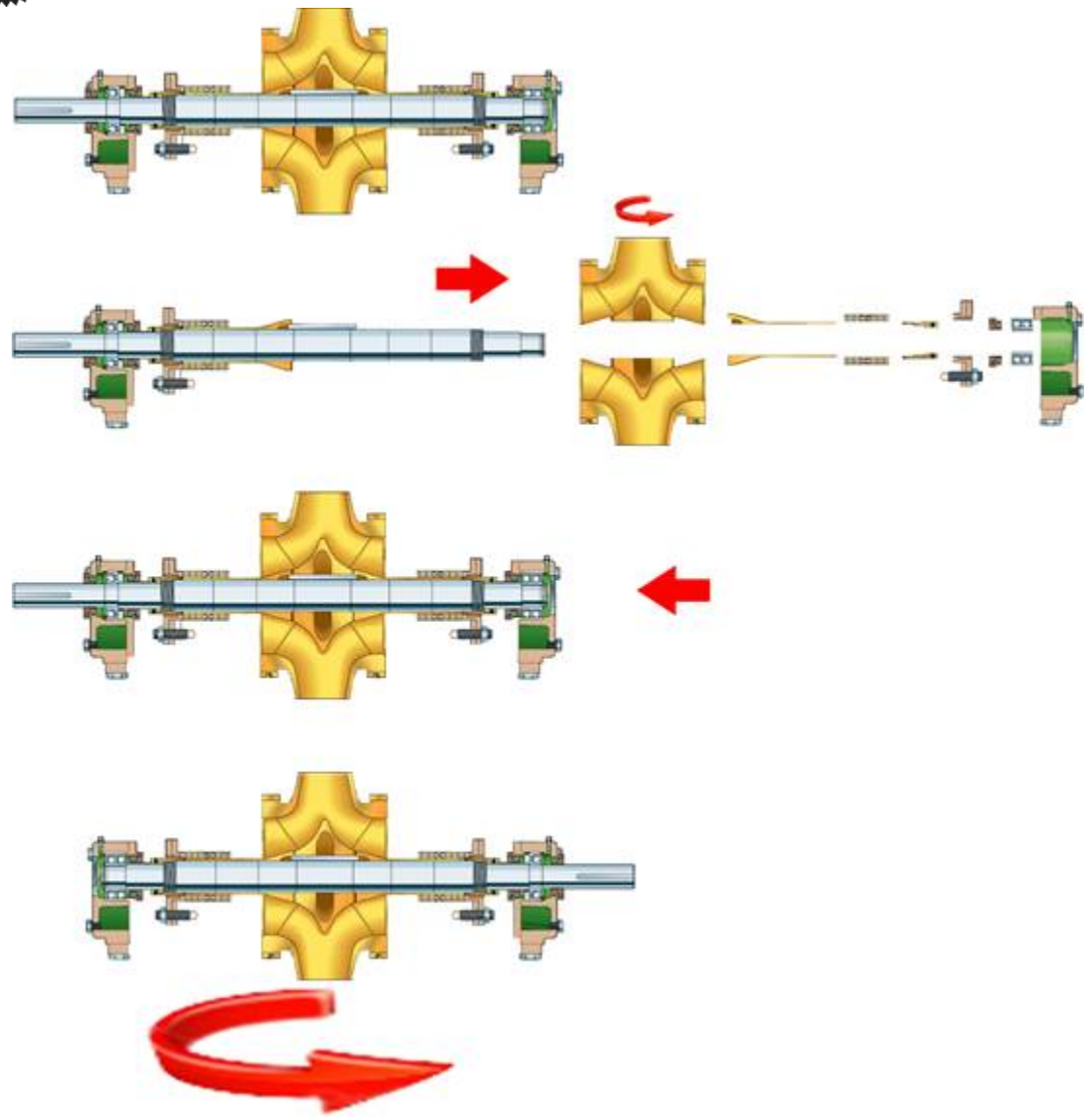

Fig 4

If you have any question please contact the product specialist and/or the product support manager. Contact information can be found in the ETM.

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